



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,787	07/25/2005	Mauro Pedretti	27793-00095USPX	8607
61060	7590	07/23/2010	EXAMINER	
WINSTEAD PC P.O. BOX 50784 DALLAS, TX 75201			FERGUSON, MICHAEL P	
			ART UNIT	PAPER NUMBER
			3679	
			MAIL DATE	DELIVERY MODE
			07/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,787	Applicant(s) PEDRETTI, MAURO	
	Examiner MICHAEL P. FERGUSON	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-21 is/are pending in the application.
- 4a) Of the above claim(s) 10,11,15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-9,12-14 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species 1, Subspecies A, Figures 5, 8-10 and 13, claims 1-9, 12-14 and 17-20, in the reply filed on November 9, 2009 is acknowledged.
2. Claims 10, 11, 15 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 9, 2009.

Claim Objections

3. Claims 1 and 8 are objected to because of the following informalities:

In claim 1 (line 27) "a bearing forces" should recite --a bearing force--.

In claim 8 (line 3) "the opening" should recite --the opening of the gas-tight hollow body--.

For the purpose of examining the application, it is assumed that appropriate correction has been made.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1, 5--9, 12-14 and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3679

Claim 1 (lines 5-29) recites "a gas-tight inflatable hollow body; at least one spherical end cap...at least one compression member... at least two flexible tension members attached to respective ends of the at least one compression member in a joint... a node element comprising a plate-shaped section... wherein the joint comprises a joint element operable to support the pneumatic structural element.. wherein, responsive to pressurization of the gas-tight inflatable hollow body, the at least two flexible tension members are equally stressed; wherein the first and second means for fastening are arranged such that, responsive to application of a load, the bending moments within the joint elements are symmetrical relative to the at least one compression member; and wherein the vectors of the tensile forces exerted by the at least two flexible tension members, of and the compressive forces exerted by the at least one compression member and bearing forces exerted on the plate-shaped section in the joint element sum to zero, resulting in no bending moments being produced in the at least one compression member".

Claim 1 fails to clearly and positively recite any structural limitations which enable one to properly determine what constitutes such gas-tight hollow body; it is unclear as to how such hollow body can be pressurized since only a single spherical end cap has been positively claimed. Furthermore, Claim 1 fails to clearly and positively recite any structural limitations which enable one to properly determine what constitutes such node element, the joint element, and the first and second fastening means; it is unclear as to how a bending moment or tensile and compressive forces can be exerted since only a single node element and joint element has been positively claimed at only one end of

Art Unit: 3679

the hollow body, and since such single node element and joint element as only attached to one end of the compression member and the tension members. Claims 5-9, 12-14 and 17-21 depend from claim 1 and are likewise rejected as being indefinite.

Claim 1 (lines 24-25) recites the limitation "the joint elements". There is insufficient antecedent basis for this limitation in the claim, as only one joint element has been previously recited.

Claim 9 (lines 5-6) recites "a connecting element... means for fastening the joint element". Claim 9 fails to clearly and positively recite any structural limitations which enable one to properly determine what constitutes such connecting element or such fastening means; it is unclear as to what structural element the joint element is fastened.

6. Claims 1, 5, 7-9 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships which render the claims indefinite are as follows:

Claim 1 (lines 13-16) recites "a node element comprising a plate-shaped section having an opening operable to accommodate the at least one spherical end cap, first means for fastening the at least two flexible tension members to the plate-shaped section and second means for fastening the at least one compression member to the plate-shaped section". Claim 1 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the

Art Unit: 3679

functional relationship between the opening and the first and second fastening means and each of the plate-shaped section of the node element, the joint element, the hollow body, the end cap, the compression member and the tension members.

Claim 5 (lines 2-4) recites “wherein the second means for fastening the at least one compression member comprise a hole with a screw, and the first means for fastening the at least two flexible tension members comprise holes”. Claim 5 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the functional relationship between the compression member fastening hole and screw, and the tension member fastening holes and each of the plate-shaped section of the node element, the joint element, the compression member and the tension members.

Claim 7 (line 8) recites “auxiliary sealing means are provided”. Claim 7 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the functional relationship between the auxiliary sealing means and each of the plate-shaped section of the node element, the hollow body and the end cap.

Claim 8 (lines 3-4) recites “the at least one spherical end cap and opening [of the gas-tight hollow body] have a cylindrical part and a conical or spherical part. Claim 8 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the functional relationship between the cylindrical part and the conical or spherical part and each of the gas-tight hollow body, the plate-shaped section of the node element and the end cap.

Art Unit: 3679

Claim 9 (lines 5-6) recites “a connecting element... means for fastening the joint element”. Claim 9 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the functional relationship between the connecting element and such fastening means and each of the plate-shaped section of the node element, the joint element, the hollow body, the end cap, the compression member and the tension members.

Claim 20 recites “wherein the joint element is screwed tight. Claim 20 fails to clearly and positively recite any structural limitations which enable one to properly determine the structural engagement and the functional relationship between the joint element and each of the plate-shaped section of the node element, the connection element, the hollow body, the end cap, the compression member and the tension members; it is unclear as what structural element the joint element is screwed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 9, 12-14 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potocki et al. (FR 2 341 017) in view of Pedretti (WO 01/73245).

As to claim 1, Potocki et al. disclose a pneumatic structural element comprising:
a gas-tight inflatable hollow body **6**;

Art Unit: 3679

at least one spherical end cap **50** disposed at an end of the gas-tight inflatable hollow body;

a node element **35** comprising a plate-shaped section having an opening **37** operable to accommodate the at least one spherical end cap;

wherein the joint comprises a joint element **37** operable to support the pneumatic structural element (Figures 4-6,9).

Potocki et al. fail to disclose a pneumatic structural element comprising at least one compression member disposed along a length of the gas-tight inflatable hollow body; at least two flexible tension members attached to respective ends of the at least one compression member in a joint, the at least two flexible tension members disposed in opposite helical positions around the gas-tight inflatable hollow body and tightly abut the gas-tight inflatable hollow body; and first means for fastening the at least two flexible tension members to the plate-shaped section and second means for fastening the at least one compression member to the plate-shaped section; wherein, responsive to pressurization of the gas-tight inflatable hollow body, the at least two flexible tension members are equally stressed; wherein the first and second means for fastening are arranged such that, responsive to application of a load, the bending moments within the joint elements are symmetrical relative to the at least one compression member; and wherein the vectors of the tensile forces exerted by the at least two flexible tension members, of and the compressive forces exerted by the at least one compression member and bearing forces exerted on the plate-shaped section in the joint element

Art Unit: 3679

sum to zero, resulting in no bending moments being produced in the at least one compression member.

Pedretti teaches a pneumatic structural element comprising at least one compression member **2** disposed along a length of a gas-tight inflatable hollow body **1**; at least two flexible tension members **4** attached to respective ends of the at least one compression member in a joint **3**, the flexible tension members disposed in opposite helical positions around the gas-tight inflatable hollow body and tightly about the gas-tight inflatable hollow body; and first means for fastening the flexible tension members to a plate-shaped section **3** and second means for fastening the compression member to the plate-shaped section; wherein, responsive to pressurization of the gas-tight inflatable hollow body, the flexible tension members are equally stressed; wherein the first and second means for fastening are arranged such that, responsive to application of a load, the bending moments within the joint element is symmetrical relative to the compression member; and wherein the vectors of the tensile forces exerted by the at least two flexible tension members, of and the compressive forces exerted by the compression member and bearing forces exerted on the plate-shaped section in the joint element sum to zero, resulting in no bending moments being produced in the at least one compression member; compression member **2** and tension members **4** provide a great stiffness and buckling resistance to hollow body **1**, while being produced simply and cost effectively, and being easily assembly to complex structural components (Figures 1a-3c,7,10; page 1 line 35-page 2 line 3, page 3 line 34-page 4 line 6). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention

Art Unit: 3679

was made to modify the structural element disclosed by Potocki et al. to comprise a compression member and tension members as taught by Pedretti in order to provide a great stiffness and buckling resistance to the inflatable hollow body, while being produced simply and cost effectively, and being easily assembly to complex structural components.

As to claim 9, Potocki et al. disclose a pneumatic structural element comprising a connecting element **34**, the connecting element comprising means **36** for fastening the joint element **37**; and wherein the connecting element is arranged such that the bearing forces can be introduced into the joint elements (Figures 4,9).

As to claim 12, Potocki et al. disclose a pneumatic structural element wherein the connecting element **34** is a frame structure on which the joint element **37** can be fastened and forms at least part of a side surface of the frame structure (Figures 4,9).

As to claim 13, Potocki et al. disclose a pneumatic structural element wherein the connecting element **34** is polygonal in a horizontal projection, and at least one joint element **37** can be fastened **36** on at least one side wall of the connecting element (Figures 4,9).

As to claim 14, Potocki et al. disclose a pneumatic structural element wherein the joint elements **37** can be fastened on a plurality of sides of the connecting element **34** polygonal body, with the result that wherein the pneumatic structural element is arranged around the connecting element (Figures 4,9).

As to claims 17, 18 and 19, Potocki et al. disclose a pneumatic structural element wherein the joint element **37** can be fastened to a side of the connecting element **34**

Art Unit: 3679

(Figures 4,6). Potocki et al. do not disclose any structural or functional significance as to the specific shape of the connecting element. Potocki et al. fail to disclose a pneumatic structural element wherein the connecting element comprises a tetrahedron shape, a cube shaped external form, or a truncated pyramid external form.

The applicant is reminded that a change in the shape of a prior art device, wherein there is no structural or functional significance disclosed as to the specific shape of an element, is a design consideration within the skill of the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structural element disclosed by Potocki et al. wherein the connecting element comprises a tetrahedron shape, a cube shaped external form, or a truncated pyramid external form as Potocki et al. do not disclose any structural or functional significance as to the specific shape of the connecting element, and as such practice is a design consideration within the skill of the art which would yield expected and predictable results.

As to claim 20, Potocki et al. disclose a pneumatic structural element wherein characterized in that the joint element **37** is screwed **36** tight (Figure 4).

As to claim 21, Potocki et al. disclose a pneumatic structural element wherein the joint element **37** comprises at least one second joint element operable to allow attachment of at least one additional pneumatic structural element **6** (Figures 4,6,9).

Allowable Subject Matter

9. Claims 5-8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 5, Potocki et al. in view of Pedretti discloses the claimed pneumatic structural element with the exception of wherein the second means for fastening the at least one compression member comprise a hole with a screw, and the first means for fastening the at least two flexible tension members comprise holes for introducing the at least two flexible tension members and fastening them with nuts.

As to claim 7, Potocki et al. in view of Pedretti discloses the claimed pneumatic structural element with the exception of wherein the at least one spherical end cap is received by and enclosed by the gas-tight inflatable hollow body; the at least one spherical end cap can be introduced flush into an opening in the gas-tight inflatable hollow body; and auxiliary sealing means are provided for sealing the at least one spherical end cap and the gas-tight inflatable hollow body in a gas-tight manner.

There is no teaching or suggestion, absent the applicant's own disclosure, for one having ordinary skill in the art at the time the invention was made to modify the pneumatic structural element disclosed by Potocki et al. in view of Pedretti to have the above mentioned elemental features. Furthermore, such modifications would yield unexpected and unpredictable results.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 9, 12-14 and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure. The following patent shows the state of the art with respect to connecting elements:

Caruso (US 5,546,707) is cited for pertaining to connecting elements connecting pneumatic structural elements.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. The newly added limitations of "a gas-tight inflatable hollow body; at least one compression member... at least two flexible tension members" in claim 1 (lines 5-10) necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3679

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL P. FERGUSON whose telephone number is (571)272-7081. The examiner can normally be reached on M-F (6:30am-3:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571)272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MPF
07/21/10

/Michael P. Ferguson/
Primary Examiner, Art Unit 3679